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**BEST AVAILABLE COPY****REMARKS**

In the Official Action mailed 07 June 2005, the Examiner reviewed claims 1-49. The Examiner objected to claims 25-36, 38-40, 44-45 and 47. The Examiner has rejected claims 25-36 under 35 U.S.C. §112; second paragraph, rejected claims 1-8, 10-15, 18-20, 22-27, 30-32, 35-39, 41-43, 46-49 under 35 U.S.C. §102(e); rejected claims 9, 21, 33-34 and 40 under 35 U.S.C. §103(a); and rejected claims 16-17, 28-29 and 44-45 under 35 U.S.C. §103(a).

Applicant has amended claims 1, 6, 13, 18, 25, 30, 31, 38-40, 44, 45, 47, 48 and 49; and added claims 450 and 51. Claims 1-51 are now pending.

The Examiner's objection and rejections are respectfully traversed below.

**Objection to Claims 25-36, 38-40, 44-45 and 47**

The Examiner objected to claims 25-36, 38-40, 44-45 and 47 for enumerated informatics. Applicant has amended the claims to address the objection. Accordingly, reconsideration of the objection to claims 25-36, 38-40, 44-45 and 47 is respectfully requested in view of the amendments.

**Rejection of Claims 25-26 under 35 U.S.C. §112, second paragraph**

The Examiner rejected claims 25-36 under 35 U.S.C. §112, second paragraph, as indefinite because of "insufficient antecedent basis," referring specifically to independent claim 25, and claims 30 and 31 which depend therefrom. Applicant has amended claims 25, 30 and 31 as set forth above to address the antecedent basis issues. Accordingly, reconsideration of the rejection of claims 25-36 is respectfully requested in view of the amendments.

**Rejection of Claims 1-8, 10-15, 18-20, 22-27, 30-32, 35-39, 41-43, 46-49 under 35 U.S.C. §102(e)**

The Examiner rejected claims 1-8, 10-15, 18-20, 22-27, 30-32, 35-39, 41-43, 46-49 under 35 U.S.C. §102(e), as anticipated by Sessions et al. (U.S. Patent No. 6,606,576). Of these claims, claims 1, 13, 18, 25, 37, 47 and 49 are original independent claims, and with the exception of claim 37, have been amended as set forth above. Claims 6, 18 and 30 have been amended to incorporate their respective base claims, and are now independent. Applicant respectfully requests reconsideration.

Sessions et al. describes parallel data communication across an arrangement of M parallel

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data paths on which N bits of data is transferred between two nodes. An extra data path in the M paths are used for calibration. An embodiment is described in which the data paths have rotating assignments during calibration, where the data path being used for calibration data is changed in a rotating fashion. Sessions et al. states, "Advantageously, in the above example, the calibration testing and recalibration of each data path can occur while the data channels are in use, thereby alleviating the need to interrupt a data transmission between the nodes 202 and 204." However, while the technique described by Sessions et al. might "alleviate the need to interrupt data transmission," it actually interrupts data flow during the switching of the data path from the data transmission mode to the calibration mode. See, Sessions et al. column 7, lines 6-33. Referring to the example described in the just cited section of Sessions et al., as data path "A" is switched from carrying calibration data to carrying actual data, and data path "B" is switched from carrying actual data to carrying calibration data, which is a copy of the data being assigned to data path "C". During the procedure describe by Session et al. at least during settling of the switches, data flow of the data on data path "B" is interrupted.

Applicant has amended claim 1 by adding a limitation that the control logic is able to make the changes in allocation among the signal lines "so that reception of data from the line subject of the change, in the N line bus is uninterrupted." Sessions et al. does not teach this feature.

Claims 2-5 depend from claim 1 as amended and distinguish over Sessions et al. for at least the same reasons. Specifically with respect to claims 4 and 5, Applicant submits that the Examiner is mistaken in the interpretation of Sessions et al. Sessions et al. does not disclose the technique of adjusting adjustable clock generators as recited in such claims. The Examiner cites column 1, lines 54-57, and column 2, lines 52-61. The two citations are not related together specifically by Sessions et al. The first citation merely states that a clock signal is passed across the interconnect, and "the receive clock is typically derived from or synchronous with clock on the transmitting module." The second citation explicitly states that the "calibration circuit adjusts a transmission time." There is no description of adjusting an adjustable clock generator that produces the receive clock in these citations.

Claim 6 has been amended as set forth above to incorporate the subject matter of its base claim, and to clarify the limitation described. Claim 6 recites a procedure by which control logic controls the switch to change the line coupled to the line maintenance circuit. The Examiner cites column 7, lines 6-28 as a suggesting the claimed control logic. However, Applicant

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requests reconsideration. The cited passage of Sessions et al. is discussed above, and does not teach the specific procedure recited in claim 6.

Claims 7, 8 and 10-12 depend from claim 1 as amended, and are patentable for at least the same reasons, and because of the unique combinations recited.

Independent claim 13 is directed to a transmitter side of a communication bus, and has been amended in a manner analogous to the amendment of claim 1. Thus, it is believed allowable for the reasons discussed above.

Claims 14 and 15 depend from claim 13 as amended, and are patentable for at least the same reasons, and because of the unique combinations recited.

Claim 18 has been amended to incorporate its base claim, and to clarify the logic. As discussed above with respect to claim 6, its receiver side analog, claim 18 recites a species of procedures for changing the line to which the line maintenance circuit is coupled which can be operated without interrupting data flow and independent of the data flow. Sessions et al. does not recognize nor solve the problem addressed by the claimed control logic.

Claims 19-20 and 22-24 depend from claim 13 as amended, and are patentable for at least the same reasons, and because of the unique combinations recited.

Claim 25 is an independent claim which incorporates features of independent claims 1 and 13, and has been amended in a fashion similar to that discussed above in connection with claim 1. Thus, is a believed allowable for the reasons discussed above.

Claims 26 and 27 depend from claim 25 as amended, and are patentable for at least the same reasons, and because of the unique combinations recited.

Claim 30 has been amended to incorporate its base claim 25, and to clarify the logic on the transmit side. As discussed above with respect to claim 6 and claim 18, claim 30 recites a procedure for changing the line to which the line maintenance circuit is coupled which can be operated without interrupting data flow and independent of the data flow. Sessions et al. does not recognize nor solve the problem addressed by the claimed control logic.

Claim 31 has been amended to depend from claim 30, and to clarify the logic on the receiver side. It is patentable for the reasons discussed above in connection with claim 30.

Claims 32, 35 and 36 depend from claim 25 as amended, and are patentable for at least the same reasons, and because of the unique combinations recited.

Independent claim 37 has not been amended. The Examiner made the blanket characterization that claims 37-39, 42 and 43 and 45 "are method claims corresponding to

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system claims 25-27, 30 and 36." The Examiner concluded therefore, that they should be unpatentable for the same reasons. However, claim 37 includes the limitation "calibrating a parameter associated with the communication line (n) on the N+1 communication lines in response to the calibration signal." Sessions et al. describes a procedure in which the calibration circuit adjusts transmission time on a path adjacent to the path that carries the calibration signal, rather than on the line carrying calibration signal itself. See, Sessions et al. column 2, lines 56-61.

Accordingly, the Examiner misreads in the reference. Claim 37 recites a unique process not suggested by the prior art. Claims 38, 39, 42, 43, 45 and 46 depend from claim 37, and are patentable for at least the same reasons.

Independent claims and 47, 48 and 49 have all been amended to emphasize that the maintenance structure operates without interruption of data flow, unlike Sessions et al. Thus, claims 47, 48 and 49 are patentable for at least the reasons discussed above in connection with claim 1.

Accordingly, reconsideration of the rejection of claims 1-8, 10-15, 18-20, 22-27, 30-32, 35-39, 41-43, 46-49, as amended, is respectfully requested.

Rejection of Claims 9, 21, 33-34 and 40 under 35 U.S.C. §103(a)

The Examiner rejected claims 9, 21, 33-34 and 40 under 35 U.S.C. §103(a) as unpatentable over Sessions et al., in view of Pedyash et al. (US Patent Pub. No. 2004/0217881). The Examiner takes the position that Sessions et al. teaches that calibration can be performed "when a signal path is taken out of service (power-down mode) (see col. 2, lines 8-15)". Official Action, page 6. Sessions et al. actually teaches that the data paths be taken out of service for calibration. It does not teach a "power-down mode" as the Examiner parenthetically asserts. Further Sessions, et al. does not teach powering down receivers and/or transmitters while continuing to maintain the signal paths as claimed. Accordingly, the Examiner has misread Sessions et al.

The Examiner relies on Pedyash et al. to teach power down circuitry. The Examiner cites paragraph [0110] which describes the Power Switch/DC/DC Regulator 1090 shown in Fig. 10 of Pedyash et al. This component 1090 is a separate integrated circuit for power management of a plurality of modules on a circuit board, and is unrelated to powering down receivers and transmitters on communication lines as required by claims 9, 21, 33 of and 34 and 40.

Accordingly, the examiner's *prima facie* case is based on a misreading of the Sessions et

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al. reference, and misapplication of the teaching of Pedyash et al. Indeed, the combination of the two references would not lead to the structure recited in these claims, because there would be no circuitry for powering down receivers and transmitters on communication lines as required, "while continuing to maintain" the signal paths.

Accordingly, reconsideration of the rejection of claims 9, 21, 33-34 and 40 is respectfully requested.

Rejection of Claims 16-17, 28-29 and 44-45 under 35 U.S.C. §103(a)

The Examiner rejected claims 16-17, 28-29 and 44-45 under 35 U.S.C. §103(a) as unpatentable over Sessions et al., in view of Keeth et al (U.S. Patent No. 6,889,357). Claims 16-17, 28-29 and 44-45 recite limitations directed to the calibration signal source. The Examiner acknowledges that Sessions et al. does not discuss a signal source as described in these claims. Rather, Sessions et al. utilizes a copy of the data signal from the adjacent line to be calibrated as a calibration signal:

The Examiner relies upon Keeth et al. to suggest the calibration signal source features recited in these claims. However, Keeth et al. is explicitly directed to calibration apparatus that operates during "start-up/reset." Accordingly, Keeth et al. does not operate during operation of the data paths, and would not be combined with the teaching of Sessions et al. The Examiner merely states that the combination would be made "to ensure optimal operation of the device." Applicant submits that this is not a reasonable explanation of a motivation to combine these references.

Furthermore, the combination of references relied upon by the Examiner does not suggest the combination recited in independent claims 13, 25 and 37, from which claims 16-17, 28-29 and 44-45 depend.

Accordingly, reconsideration of the rejection of claims 16-17, 28-29 and 44-45, as amended is respectfully requested.

New Claims 50 and 51

Applicant adds new claims 50 and 51, which correspond with claims 1 and 13 respectively, but recite that the line maintenance circuit performs calibration "independent of the data flow on the N line bus." These claims are supported by the original specification at least inherently and at paragraph [0008]. As explained above, the references cited by the Examiner are incapable of the operation described in claims 50 and 51.

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**CONCLUSION**

It is respectfully submitted that this application is now in condition for allowance, and such action is requested.

The Commissioner is hereby authorized to charge any fee determined to be due in connection with this communication, or credit any overpayment, to our Deposit Account No. 50-0869 (RBUS 1305-1).

Respectfully submitted,

Dated: 50-0869



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